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Investigation into the effects of high temperature on mechanical properties of thermal spray coatings applied by plasma spraying

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Abstract

© 2018 Trans Tech Publications, Switzerland. C. C. Berndt advanced investigations of mechanical properties of thermal spray coatings under 4-point bending. He found that this investigation method is sensitive to the mechanical properties of thermal spray coatings.This paper contains the detailed investigation results for thermal spray coatings of zirconium dioxide under 4-point bending, i.e. tests of the specimens subjected to spraying at varying conditions and pre-test soaking with the various duration at 1100 °C. It was established how the mechanical properties of thermal spray coatings changed depending on the spraying mode and high temperature soaking. The test results show that the double heat treatment of coatings is more preferable than one-time heat treatment as it make the properties change linearly. It is more easily controllable during operation of the components with thermal spray coating.

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Keywords

4-point bend testing, High temperature, Thermal barrier coating

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